National Institute of Environmental Health Sciences

Evaluating thermal comfort conditions and health responses during an extremely hot summer in Athens

Author(s): Pantavou K, Theoharatos G, Mavrakis A, Santamouris M
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Abstract:

In summer 2007, in the city of Athens, Greece, extremely high air temperatures were recorded, inducing heat discomfort conditions in the urban environment. Four biometeorological indices were calculated in order to evaluate human thermal sensation and thermal comfort: Actual Sensation Vote (ASV), Thermal Sensation-Ginovi method (TS), Discomfort Index (DI) and Heat Load Index (HL). Data included measurements of ambient temperature, temperature of the surrounding ground surface, relative humidity, air pressure, wind velocity and solar radiation obtained from National Observatory of Athens (NOA) station. During this period the daily number of patients probably affected by heat in emergency department units of cardiac clinics of four public general hospitals in Athens was recorded. The results revealed high values of DI and HL indices, demonstrating severe heat stress conditions during the last ten day period of June and July, while the ASV tends to classify too many cases into the comfort zone compared to TS, DI and HL The statistical analysis revealed a negative relationship between the number of heat affected patients and the estimated indices values. (C) 2010 Elsevier Ltd. All rights reserved.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Meteorological Factors, Meteorological Factors, Solar Radiation, Temperature

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Greece

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Injury, Other Health Impact

Other Health Impact: heat related mobidity

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified